

one another, and a third posterior to these. In the Ornithorhynchus, while the latter retains its situation in the middle, the other surfaces have separated from each other, and have travelled outwards, taking their stations upon the leaves. In the Mammalia, the middle surface has wholly disappeared, and the outer surfaces have risen into what are termed the *oblique processes*.

In addition to these, accessory bones are often developed to suit particular occasions. Thus, in fishes, we see that one or two additional pieces (1) are affixed to the ends of each spinous process. In many cases, instead of being thus placed in a line with these processes, they appear at a little distance, as if they had slipped from their proper situations: they are then found between the spinous processes, and receive the name of *interspinous bones*.

The spinous processes have a tendency, when their development proceeds, to divide into two branches, and this bifurcation frequently takes place also in the interspinous bones. The transverse processes, likewise, occasionally develop accessory pieces, as is found to be the case in some reptiles; but, in other instances, they undergo a gradual change of position, as we follow them backwards along the spinal column, where they descend towards the abdominal region.

The flexibility of particular portions of the spinal column is regulated by the size and form of its processes. When these are much developed, they necessarily obstruct the flexion of the vertebrae in the directions in which they are situated: when they are small, no such hinderance arises, and the spine is free to move in all directions. Thus, when we see the spinous processes much enlarged, while the transverse processes are small, we may infer that the spine is incapable of any bending in that direction; but that it has the power of free lateral flexion. This is the condition of the spine of fishes, where this latter kind of motion is the one principally wanted. In dolphins, and other cetacea, on the contrary, where the actions are required to be vertically upwards and downwards, the spinous processes are small, and the transverse processes very long and broad.